

3.5 AIR QUALITY

This section summarizes the results from an examination of existing air quality in the three-county region, the ROI for this analysis. The ROI has a heavy industrial base with seaport and airport activities that contribute to local and area-wide emissions inventories in the three-county region. Emissions of primary concern that are generated by these activities are volatile organic compounds (VOC) and nitrogen oxides (NO_x). These are precursors to ozone (O₃), a pollutant subject to stringent regulation by the USEPA. Although the impact analysis in Chapter 4.0 examines the results of the Proposed Action and its alternatives on these ozone precursors, the existing conditions analysis presented here uses actual ozone levels. This is because existing, absolute ozone levels are indeed measurable through monitoring; however, in order to predict future ozone levels, ozone precursors must be used as proxy pollutants.

The air quality analysis summarized in this section was undertaken to determine whether or not the ROI is in attainment for three regulated pollutants – ozone (O₃), carbon monoxide (CO), and coarse particulate matter (PM₁₀) – that have particular relevance to the construction and operation of the Proposed Action and its alternatives. Fine particulate matter (PM_{2.5}) was not studied because USEPA has yet to designate attainment/nonattainment status for this pollutant. Detailed tabulations of the findings from this analysis are presented in the Air and Noise Modeling Technical Report prepared by Baker (Baker, 1999c). For general information on carbon monoxide, ozone, and particulate matter, see Appendix F, Section F.1.

3.5.1 Regional Air Quality Attainment

Since attainment/nonattainment is strictly based on regional compliance, the air quality analysis did not use different ROIs for each alternative. Instead, existing air quality was assessed using pollutant levels representative of a single, three-county ROI. This ROI spans the three counties of Harrison, Jackson, and Hancock and encompasses all roadways predicted to experience traffic volume changes as a result of the Proposed Action or its alternatives.

Unlike the approach used for this summary review of existing attainment/nonattainment, the impact analysis for air quality (described in Section 4.5) is alternative-specific. Therefore, the ROIs for the impact analysis cover different roadway networks for each alternative and thus differ from the single ROI used here. (Although the impact analysis for ozone is indeed regional, it is still broken down by alternative on a project-level basis.)

3.5.2 Attainment of Air Quality Standards

In response to the Clean Air Act (CAA), the USEPA has established National Ambient Air Quality Standards (NAAQS) for the protection of human health and welfare. The NAAQS represent maximum levels of pollutants and exposure periods that pose no significant threat to human health or welfare. Pollutants subject to NAAQS are referred to as “criteria pollutants” because the USEPA publishes criteria documents to justify the standards. Table 3.5-1 lists the NAAQS.

Table 3.5-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary^a	Secondary
CO	1-hour Average^b 35.0 ppm (40.0 $\mu\text{g}/\text{m}^3$)	None
	8-hour Average^b 9.0 ppm (10.0 $\mu\text{g}/\text{m}^3$)	None
	Annual Arithmetic Mean 0.053 ppm (100.0 $\mu\text{g}/\text{m}^3$)	Same
NO ₂	Max. Daily 1-hr Average^c 0.12 ppm (235.0 $\mu\text{g}/\text{m}^3$)	Same
	Max. Daily 8-hr Average^c 0.08 ppm	Same
	Max. Quarterly Average 1.5 $\mu\text{g}/\text{m}^3$	Same
PM ₁₀	Annual Arithmetic Mean^d 50.0 $\mu\text{g}/\text{m}^3$	Same
	24-hour Average^b 150.0 $\mu\text{g}/\text{m}^3$	Same
	Annual Arithmetic Mean^d 15.0 $\mu\text{g}/\text{m}^3$	Same
PM _{2.5}	24-hour Average^b 65.0 $\mu\text{g}/\text{m}^3$	Same
	24-hour Average^b 0.14 ppm (365.0 $\mu\text{g}/\text{m}^3$)	Same
	Annual Arithmetic Mean 0.03 ppm (80.0 $\mu\text{g}/\text{m}^3$)	Same

Sources: USEPA, 1998.

^aParenthetical value is an approximately equivalent concentration.

^bNot to be exceeded more than once per year.

^cThe standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm or maximum 8-hour concentrations above 0.08 does not exceed 1.

^dThe annual standard is attained when the expected annual arithmetic mean concentration is less than or equal to 50 $\mu\text{g}/\text{m}^3$ for PM₁₀ and 15 $\mu\text{g}/\text{m}^3$ for PM_{2.5}.

An area is designated as "in attainment" or "in nonattainment" for a given monitored criteria pollutant based on whether or not its level of a given pollutant falls within the NAAQS for that pollutant. If data are insufficient to determine whether or not levels are within the standard, the area is designated as unclassified.

The Mississippi Department of Environmental Quality (MDEQ) Air Division is responsible for statewide measurement of ambient air concentrations and emission levels of air contaminants. Through the National Air Monitoring System and the State and Local Air Monitoring System, the MDEQ Air Division monitors air quality for criteria pollutants at various locations throughout the state pursuant to the Mississippi Air and Water Pollution Control Act and CAA.

1 MDEQ obtains ambient air quality data through a network of continuous air quality monitoring
2 stations equipped with an automated data collection system. These monitoring stations are
3 located mainly in major urban and industrial areas, which are subject to more complex air
4 pollution problems. Information from other areas of the state is provided by a network of
5 noncontinuous sampling devices. The program includes collection of ambient air samples and
6 analytical laboratory determination of the identity and quantity of materials present in a variety of
7 samples.

8 9 **3.5.3 Current Air Quality Conditions within the ROI**

10
11 To determine whether the ROI is in attainment for CO, O₃, and PM₁₀, the analysis consulted the
12 official attainment status determinations through USEPA (USEPA AIRS, 1999). The reports
13 indicate that the area is in attainment for CO, O₃, and PM₁₀ at the time of this study. (Year 2000
14 ozone status determinations have not yet been made based on the proposed regulations.)

15
16 The CO monitor nearest to the Proposed Action and its alternatives is located in the city of
17 Jackson (site #280490010-1). This monitor shows a maximum 1-hour average CO level of 5.5
18 ppm for 1999, which falls below the 1-hour NAAQS of 35.0 ppm as well as the more stringent 8-
19 hour NAAQS of 9.0 ppm. Other monitored levels in Choctaw County, Mississippi (site
20 #280190001-1), and in Montgomery, Alabama (site #011011002), have levels below 2.0 ppm.

21
22 The 1997-1999 1-hour ozone design values for the Hancock County and city of Jackson monitors
23 are 0.105 ppm and 0.113 ppm, respectively, indicating compliance with the 1-hour ozone
24 standard of 0.120 ppm. (The design value for the 1-hour ozone standard is the fourth highest
25 ozone value recorded during a three-year period.)

26
27 The PM₁₀ pollutant is in attainment for the ROI. For PM₁₀, 1999 levels currently show a
28 maximum of 21 µg/m³ at the Pascagoula monitor, meeting the NAAQS for PM₁₀, which is based
29 on an annual arithmetic mean of 50 µg/m³.

30
31 Additionally, for PM_{2.5}, the first monitoring stations for this pollutant are in the process of being
32 installed and activated in Mississippi. Data will be collected through the year 2003, and the
33 USEPA will begin to designate areas between 2002 and 2005. The 12-year period for attainment
34 will begin between 2012 and 2017. PM_{2.5} NAAQS are set at 15 µg/m³ for the arithmetic annual
35 mean, and at 65 µg/m³ for the 2-hour average.